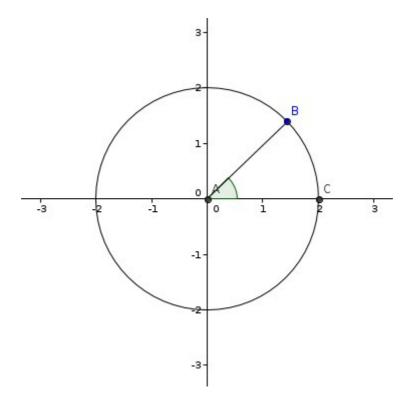
## CIRCLE IN SCRATCH USING PERIMETER

There are number ways to draw a circle in Scratch. This paper is dealing with how to draw a circle with a radius of 'r'. Before we get into that, lets have a look at some basic concepts of circle.

## **IMPORTANT THINGS**

- The perimeter of the circle is proportional to the radius
- Perimeter of a Circle =  $2 * \pi * r$ , r = radius of the circle.
- The angle covered by the circle is 360 degree.



In the fugure, AB is a radius of 2.01 cm makes a angle of 74.45 degree with the x-axis. Then one can say that the distance moved from point C to point B is equal to the product of radius & the angle made (in radians)

We can approximate a circle with a figure with many sides.

- Then the space moved in every step angle is, Perimeter / sides
- Mathematically,

$$Distance BC = 2\pi r \frac{angle}{360}$$

Since the angle of a circle is 360 the angle we need move each time is also 360/sides. Lets, side = angle, then angle moved is  $\frac{360}{side}$ , where angle here is 60 degree.

## **SCRATCH CODE**

```
Scripts
        Costumes
                      Sounds
Motion
              Events
                               when 🖊 clicked
Looks
              Control
Sound
              Sensing
                               circle 0 0 70
Pen
              Operators
Data
              More Blocks
move 10 steps
turn (🐧 15 degrees
                                define circle x_orig y_orig r
turn 🖄 鴡 degrees
                                set sides ▼ to 60
point in direction 90
                                set angle-move ▼ to 360 / sides
point towards
                                go to x: x_orig y: y_orig
go to x: 0 y: 0
go to mouse-pointer ▼
                                  turn ( angle-move degrees
glide 1 secs to x: 0 y: 0
                                  move 2 * 3.14 * r / sides steps
change x by 10
set x to 0
change y by 10
 set y to 0
if on edge, bounce
set rotation style left-right 🔻
x position
y position
direction
```

Do to this in the Scratch we all need to specify only the radius & Tolal sides ( sides) as given in the picture above.